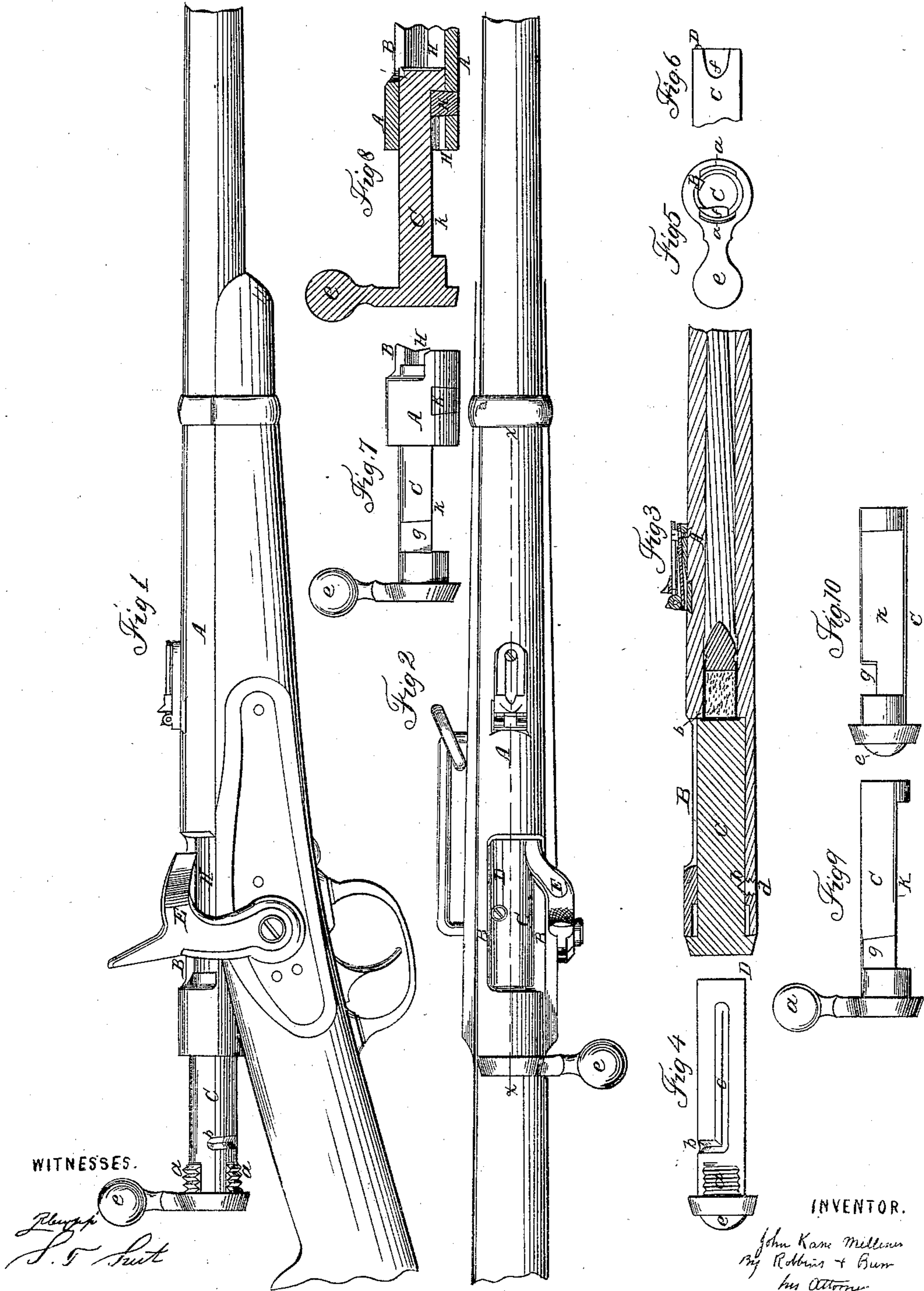


J. K. MILLNER.

Breech-Loading Fire-Arm.

No. 37,723.

Patented Feb. 17, 1863.



UNITED STATES PATENT OFFICE.

JOHN KEEN MILLNER, OF NEW YORK, N. Y., ASSIGNOR TO HIMSELF AND SAMUEL T. SUIT, OF SAME PLACE.

IMPROVEMENT IN BREECH-LOADING FIRE-ARMS.

Specification forming part of Letters Patent No. 37,723, dated February 17, 1863.

To all whom it may concern:

Be it known that I, JOHN KEEN MILLNER, of New York city, in the county and State of New York, have invented a new and useful Improvement in Breech-Loading Fire-Arms; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification.

Similar letters indicate like parts in each of the drawings, of which—

Figure 1 represents a side view of my improved breech-loading rifle with the hammer half-cocked and with the loading-cavity H left open by the withdrawal of the sliding breech-pin C; Fig. 2, a top view of the same with chamber closed and hammer down; Fig. 3, a longitudinal section of the barrel of my improved rifle when loaded, in the line *xx* of Fig. 2; Fig. 4, a side view of the sliding breech-pin C, showing the arrangement of the guiding-groove and sectional screw; Fig. 5, an end view thereof; and Fig. 6, a top view of a portion of the pin C, showing the position of the hammer-notch thereon. Figs. 7 and 8 and Figs. 9 and 10 are views representing a device equivalent to the sectional-screw arrangement for controlling and guiding the breech-pin C.

The bore of the open-breech portion of the barrel A of my improved breech-loading rifle, which forms the cavity through which the loaded cartridge is passed into the chamber of the gun, is made somewhat larger than the bore of the barrel proper, and extends from the outer end of said breech-piece to the beginning of the smaller cartridge-chamber, as represented in Fig. 3. A longitudinal aperture, B B, Figs. 1 and 2, is formed upon the upper surface of the breech-piece to the right of a vertical line passing through its axis. This aperture B is of a length and width suitable to receive the cartridge readily, and terminates at the end of the loading-cavity H near the mouth of the cartridge-chamber. A closely-fitting solid metallic pin or follower, C, Figs. 1 and 4, slides in and out within the enlarged bore H, Fig. 1. This solid breech-pin C, Fig. 3, terminates at one end in a shoulder coinciding in width with the thickness of the barrel at its termination, and upon this shoulder is formed a knob or handle, *e*, Fig. 1, by which the pin is readily moved.

A circular recess is formed in the face of the opposite end of the breech-pin C (see Figs. 1 and 5) of a depth equal to the thickness of the flanged base of the metallic cartridge used with the gun, and of a diameter coincident therewith. A sectional screw, *a*, is formed upon the breech-pin C, as represented in Figs. 1 and 4, immediately in front of the shoulder, at the outer end thereof, which works into corresponding sections of a female screw cut interiorly at the outer end of the enlarged bore H, which forms the loading-cavity in the breech of the gun. The movement of the breech-pin C within the bore H is controlled by means of grooves *c* and *b*, formed upon the said pin, and which receive a suitable guiding-screw head *d*. The groove *c* permits a free longitudinal play to the pin C while it is in such a position as that the threads of the sectional male and female screws pass each other freely without interference, (the knob or handle *e* is then upright,) and it prevents all rotary motion until the pin has been driven firmly forward its entire length. When, by the forward movement of the pin C, the loaded cartridge dropped into the bore H through the aperture B B has been pushed into the chamber of the rifled bore to its proper position for firing, the short transverse groove *b*, Figs. 1 and 4, permits a rotary motion of the breech-pin sufficient to cause an engagement of the threads of the sectional screw *a*, which, by its action, draws the shoulder of the pin firmly and closely against the end of the gun-barrel and securely retains it in this position. This fastening movement is communicated to the pin at the proper moment by means of the handle *e*, which is turned in the operation from an upright to a horizontal position, as indicated in Fig. 2. The peculiar V shape of the guiding-groove receiving the conical head of the screw *d* for its guide obviates all loosening which may result therein from wear and abrasion by constant use, for a slight turn of the screw *d* causes it to fit more closely in the groove, in a manner both uniform and even in all directions.

The breech-pin C may also be guided, controlled, and secured within the bore H by means of a bayonet-joint formed as illustrated in Figs. 7, 8, 9, and 10. In such case a longitudinal guiding-recess, *k*, Figs. 7, 8, and 9,

with a plane, smooth face, *k'*, Fig. 10, is formed upon the solid pin C, of a length equal to the extent of play requisite and desirable in the sliding movement of the pin C. At the end of this recess nearest the butt of the pin C a vertical notch, *g*, Figs. 7 and 10, is cut thereon at right angles with the face *k'* of the recess *k*. This notch *g* is of a suitable width to receive and embrace the sides of a guiding-key, K, Figs. 7 and 8, which may be either dovetailed into the lower part of the gun-barrel and there secured by a screw entering from the gun-stock below, or in some other suitable manner. That side of the embracing-notch *g* more remote from the shoulder of the pin C converges slightly as it recedes from its inception upon the face *k'* of the recess *k*, as represented in Figs. 7 and 9, so that when, by the partial revolution of the pin C, the notch *g* is made to embrace the key K it is gradually drawn and tightened thereon. As the plane face *k'* of the recess *k* slides upon the upper surface of the guiding-key, as seen in the sectional Fig. 8, a rotary movement of the breech-pin C is thereby prevented until its forward movement brings the notch *g* in such a position as that its sides will embrace the key K. By the partial revolution of the breech-pin C in this position it is perfectly locked.

In order to fire and discharge the cartridge in my improved gun, a notch, *f*, Figs. 5 and 6, is cut in the end of the solid breech-pin, which passes against and retains the cartridge in place in such a position as that when the pin is pushed forward and secured by the turn of the handle from a vertical to a horizontal position the notch will coincide with the remote lower corner of the aperture B B, Fig. 1, in the breech of the gun. This notch is so shaped as to receive the end of the hammer E of the gun, which is bent to strike fairly therein, as is shown in Fig. 2. In order to withdraw the empty cartridge after the explosion of the piece, a steel spring, D, terminating in a small hook, is let into and secured to the end of the breech-pin C, so as to be flush with its exterior surface, as represented in Figs. 2, 3, and 4. The end of the hook projects beyond the rim formed by the circular recess in the face of the pin C sufficiently to catch readily the flange on the base of the metallic cartridge.

In loading my improved rifle the hammer E is first placed at half-cock. By turning the handle or knob *e* at the outer end of the breech

from a horizontal to an upright or vertical position, the sectional screw *a* is then disengaged, and the breech-pin C, being thus released from its fastening, is drawn back its entire length, its movements being guided by the grooves *b* and *c* and the screw-head *d*, which also prevents its entire withdrawal from the gun. The removal of the sliding breech-pin C leaves the enlarged bore H in the breech of the gun entirely empty and open at the longitudinal aperture B B. Through this aperture a loaded, primed, metallic cartridge is thrown into the loading-cavity H, the only care required being that the ball shall point toward the muzzle of the rifle. The solid breech-pin C is now pushed forward, and, striking the flanged base of the cartridge, (which fits itself within the recess formed for its reception at the end of the breech-pin, and is secured by the small projecting hook D thereon,) drives it into the chamber formed for its reception at the breech of the rifled bore, into which it fits closely and with perfect accuracy. When the cartridge has thus been pushed firmly home by the forward movement of the breech-pin, the pin is at once secured in its then position by a simple turn of its handle, as heretofore described; and as the end of this breech-pin rests firmly against and embraces the flanged base of the cartridge, it forms a perfectly secure recoil-piece therefor. The gun, being now cocked, is ready for firing, and the cartridge is exploded by a blow from the hammer, which reaches its base through the notch *f*, formed for the purpose in the end of the breech-pin C.

What I claim as my invention, and desire to secure by Letters Patent, is—

Combining the breech-pin C with the open after end of a rifle-barrel which has a longitudinal loading-aperture, B B, when the said breech-pin is guided in its movements, secured in its positions, and is made to operate in conjunction with said loading-aperture, the hammer of the lock, and a primed metallic cartridge placed in the chamber of the barrel, all substantially as herein set forth.

The above specification of my improvement in fire-arms signed and witnessed this 28th day of October, A. D. 1862.

J. K. MILLNER.

Witnesses:

S. T. SUIT,

A. THO. SMITH.